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ACCIDENT HISTORY, PERCEIVED RISK OF PERSONAL INJURY, AND JOB MOBILITY AS FACTORS INFLUENCING OCCUPATIONAL ACCIDENT FATALISM

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ABSTRACT

Factors influencing one particular "negative" response to worksite hazards, i.e., fatalistic acceptance of the inevitability of personal-injury accidents, were investigated. Data were gathered through an intensive face-to-face interview with 247 full-time or part-time employees. Multiple regression analyses were carried out on these data. Accident fatalism tended to be the greatest for respondents who perceived their present jobs as dangerous and who had experienced high rates of personal injury accidents over their lifetime. In contrast, fatalism was lowest for respondents in occupations currently perceived to be safe and, for whom, accident rates were low. Fatalism was most strongly influenced by being "trapped" in a job, i.e., wishing to leave a job but unable to, when either accident rate or current risk of injury was low. Thus, lack of job mobility increased fatalism the most when respondents had extensive accident histories but current working conditions were safe. Implications of these findings for "positive" responses to hazards, e.g., use of protective clothing, are discussed.

Accident History, Perceived Risk of Personal Injury, and Job Mobility as Factors Influencing Occupational Accident Fatalism

INTRODUCTION

An extensive psychological literature exists concerning an individual's perceived locus of control and the effect of this perception on behavior. Research (Rotter, 1966; Lefcourt, 1966) suggests that some people feel that events in their lives are controlled by their own volition. These "internal controls" believe that they can make things happen in their environment. "Externals," in contrast, perceive little personal conrol; events control them. This concept of internal versus external control has implications for health behavior in general and safety in particular. Studies of health behavior (Wallston & Wallston, 1978) find that persons with an internal orientation assume responsibility for their own health and well-being. This expresses itself in a tendency for internals to collect information on preventative health care. In addition, internals are more likely to seek out information about illnesses they may have, such as tuberculosis (Seeman & Evans, 1962) or hypertension (Wallston et al., 1976). Internals are also more likely to practice good dental hygiene and to make frequent visits to the dentist for checkups (Williams, 1972b). As a preventative measure, internals are more likely than externals to obtain flu innoculations (Dabbs & Kirshct, 1971). In one study of traffic safety, Williams (1972a) found that internals were more likely to wear seatbelts when driving a car. A study of airline pilots (Wichman et al., 1983) noted that internally motivated individuals were more inclined to attend a safety clinic.

In generalizing these findings to the workplace, we would expect individuals who believe that they can actively influence the hazardousness or

safety of their work to reduce risks by purposefully operating equipment carefully, conscientiously wearing protective devices such as gloves, steel-toed boots, dust masks, and safety glasses, or attending safety seminars. The belief that one controls events in his life clearly can have positive consequences for personal safety. By way of contrast, workers who are "externals", viewing their lives as controlled by outside forces or chance events, will tend to take more reckless personal risks (Cohen et al., 1979; Pandey & Tewary, 1979) and be more passive about structuring a safer work environment for themselves.

This study focuses on factors increasing a worker's feeling of lack of control and fatalistic acceptance of the inevitability of workplace accidents. That is, what causes an individual to passively accept as a fact of life that accidents and the risk of personal injury are a normal feature of the work they do and that circumstances cannot be altered?

A possible answer can be found in the literature dealing with "learned helplessness" (Seligman, 1975). Persons afflicted with this motivational disturbance believe that they are not in charge of their own destinies, that events in their lives are controlled by outside forces rather than through their own efforts; i.e., they are similar to "externals". As a result, they make little attempt to change things in their environment that are problematic or react against situations that may threaten them. This happens because they have learned from past experiences that their actions are unable to produce favorable outcomes. Consequently, they come to adopt a helpless resignation to life and its problems. Studies in both laboratory (Langer & Benevento, 1978) and field (Langer & Rodin, 1976; Raps et al., 1982) settings suggest that learned helplessness occurs when individuals are chronically placed in dependent roles where they are expected only to follow orders issued by others rather than to function autonomously and assume responsibility for organizing and monitoring

their personal and work lives. According to Seligman (1975), learned helplessness creates motivational deficits in which individuals no longer "try" to learn new ways to control aversive events in their lives.

The present study examines a number of factors that may enhance feelings of helplessness and a fatalistic acceptance of occupational accidents. First of all, whether or not a worker has a history of occupational mishaps causing personal injury should affect accident fatalism. The more extensive this history, the more fatalistic the worker should become. After all, if one has frequently been the victim of worksite accidents, then they will probably come to accept this "accident proneness" as a fact of life, over which they have no control. Not only might the absolute number of accidents be important but so should the incidence or "density" of accidents over a period of time. Five accidents spread over a twenty year period should have less of a psychological impact than five accidents in a two or three year period. For this reason, the present study will look at "accident rate". In support of this hypothesis, a number of experimental studies have documented the fact that the more frequently one is exposed to unpleasant, seemingly uncontrollable events, the greater the learned helplessness (Krantz et al., 1974; Wortman & Brehm, 1975).

A second factor is the perceived hazardousness of a worker's present occupation. Even though one might experience an accident-studded career, an individual may currently find himself working at a relative safe job where the hazards are minimal and the risk of personal injury is slight. As a result, accident fatalism should be lower simply because the workplace is less immediately threatening. On the other hand, fatalism should be significantly greater for the worker with an extensive history of accidents who also finds himself employed in a very dangerous job. The high risk of personal injury, combined with a track record in which accidents have been frequent in number and occurrence, should enhance feelings of helplessness and fatalism.

In general, a person who finds himself in a hazardous work environment should be motivated to take some sort of protective measures to avoid personal injury. Even though all reasonable precautions are taken, a person may still find himself to be at risk, and this risk cannot be reduced further short of leaving the job altogether. Consequently, a fatalistic acceptance of job-related accidents may be a expeccted cognitive adjustment for someone in this situation. If one recognizes the inherent dangers of the job, yet continues to work at it, a fatalistic resignation to this state of affairs may set in, providing a cognitive resolution to the dissonance and anxiety that this awareness produces.

One obvious way of reducing the risk of personal injury from occupational accidents is to, indeed, leave and find safer work. The learned helplessness literature leads us to believe that this solution is unlikely to be entertained by those who are fatalistic about accidents. They have learned that they can do little to control their lives, including seeking a safer job. Unsuccessful attempts to find a safer line of work should, conversely, intensify feelings of helplessness and fatalism. Studies of natural disasters, such as earthquakes in California (Kiecolt et al., 1982) and radioactive contamination at Three-Mile Island (Davidson et al., 1982) indicate that psychological resignation and fatalistic acceptance are more likely to occur for residents of these hazardous locations if they are unable to move somewhere else that is safer. Owning a home in the endangered community, length of residency, number of friends in the community, and having children enrolled in local schools, all increase the costs of leaving and, thereby, lessen the perceived freedom to move. In generalizing this to the workplace, it is expected that accident fatalism will be greater when a worker feels that there are few alternative job opportunities. The sense of being "trapped" in an unsafe job, with subsequently greater feelings

of being "trapped" in an unsafe job, with subsequently greater feelings of helplessness and fatalism, should be even greater if a person would "like" to leave but finds that he cannot.

In summarizing to this point, this study looks at four factors that may increase one's occupational accident fatalism: (1) rate of previous occupational accidents resulting in personal injury; (2) perceived risk of personal injury at one's current job; (3) ability to find other work; (4) desire to leave or stay with one's current employer. Table 1 shows how these four variables may combine to influence fatalism. It is hypothesized that fatalism will be greatest when a worker has experienced a high rate of accidents, perceives himself to be presently at risk to injury, wishes to change jobs, but finds that he cannot acquire another job. Fatalism should be the lowest when a worker has experiernced few accidents, feels that he is not at personal risk, has no desire to change jobs, and perceives a large number of job alternatives if he did choose to leave his current employer.

METHOD

1. The Sample.

Data analyzed in this study are taken from a larger survey of the quality of working life conducted in Edmonton, Alberta in 1983. Questions were asked in this interview-based survey concerning a respondent's job history, work characteristics, workplace, and occupational safety.

A simple random sample of 547 addresses was drawn from a computerized list of addresses compiled by the City of Edmonton in its 1982 census enumeration. Nursing homes and temporary residences were deleted from the sample. Within each selected household, one eligible person (18 years or older) was selected as the respondent for the one hour interview.

Of the 547 addresses originally drawn, 420 completed interviews (76.8%)

TABLE 1. Hypothesized Impact of Combinations of Predictors on Accident Fatalism.

Level of Accident Fatalism		Previous Accidents	Risk of Injury	Job Alternatives	Desire to Charge Jobs
Lowest	(1)	Low	Low	Many	No
	(2)	Low	Low	Many	Yes
	(3)	Low	Low	Few	No
	(4)	Low	Low	Few	Yes
	(5)	Low	High	Many	No
	(6)	Low	High	Many	Yes
	(7)	Low	High	Few	No
	(8)	Low	High	Few	Yes
	(9)	High	Low	Many	No
	(10)	High	Low	Many	Yes
	(11)	High	Low	Few	No
	(12)	High	Low	Few	Yes
	(13)	High	High	Many	No
	(14)	High	High	Many	Yes
	(15)	High	High	Few	No
Highest	(16)	High	High	Few	Yes

were achieved. Of these 54.0% are male and 46.0% are female. A comparison of data from the survey with 1981 Canadian census statistics reveals a high degree of similarity in terms of household and age composition. This indicates that the sample is highly representative of the general adult population in Edmonton (Kinzel, 1983).

In the present study, data are analyzed for 247 respondents. These are respondents who: (1) gave complete answers to all of the items used in the study and, (2) were employed outside the home on a full-time or part-time basis. Of these 263 respondents, 61.0% are male and 39.0% are female.

2. The Variables.

Table 2 provides a detailed description of variables analyzed in this study. The dependent variable is accident fatalism. The four predictor variables examined are: (1) chance of injury; (2) accident rate; (3) ability to get a better job; (4) desire to stay or leave one's currenet employer. Accident rate represents the self-reported number of job-related injuries as a result of accidents that a respondent has incurred. These accident caused injuries have been divided by a respondent's age. It is believed that by examining the predictive power of "accident rate" instead of just number of accidents we can eliminate the confounding effect of respondent's age on the analysis of accident fatalism. As a respondent grows older, there is increased likelihood that they will experienced job-related accidents and injuries. At the same time, "aging" may increase one's cyncisim about controlling the work environment, thereby increasing the respondent's fatalism with regard to occupational hazards and accidents.

In addition, all possible two-way, three-way, and four-way interaction terms involving the four predictor variables are examined in this study.

TABLE 2. Descriptive Statistics.

Variables	Questionnaire Items	Response Categories	Mean	Median	Standard Deviation
1. Accident Fatalism: X_1	Accidents are just one of the occupational hazards that one must accept if they are going to do this job.	Strongly agree (7) - Strongly disagree (1)	2.92	2.0	2.16
2. Chance of Injury: X_2	My chances of being hurt are pretty remote in the kind of work I do.	Strongly agree (7) - Strongly disagree (1)	5.27	6.0	2.04
3. Accident Rate: X_3	How many accidents at work have you ever had that have affected your health?	Number of accidents/ respondent's age	0.04	0.02	0.12
4. Ability to get a better job: X_4	I could get a better job if I quit my present one	Strongly agree (7) - Strongly disagree (1)	2.50	1.0	1.80
5. Desire to stay or leave current employer: X_5	I would like to stay with my present employer as long as possible	Strongly agree (7) - Strongly disagree (1)	5.32	5.0	1.94

RESULTS

1. Bivariate Relationships.

Accident fatalism is significantly correlated with only one variable, chance of injury. The more remote a respondent judges his likelihood of occupational injury, the less fatalistic they are about accidents on the job ($r = -0.35$, p less than 0.001).

Other significant correlations include a positive association between the remoteness of injury and a desire to stay with one's current employer ($r = 0.22$, p less than 0.001) and an association between desire to stay with one's employer and an inability to find a better job ($r = -0.36$, p less than 0.001).

2. Regression Analyses.

The general model tested in this study is shown in Figure 1. Stepwise multiple regression was carried out in which the dependent variable, accident fatalism, was regressed against the predictor variables and all possible interaction terms involving the four predictors. Each successive step in the analysis extracted the variable or interaction term which was the most statistically significant at the 0.05 level or better and increased the variation explained in the dependent variable. In those instances where interaction terms made a significant contribution, further analysis of these effects was conducted by dichotomizing the variables composing the interaction term at their medians and statistically comparing cell means for each combination of variables using two-tailed t-tests.

Table 4 shows that the main effect of chance of injury and three interaction terms explained 19.0% of the variation in accident fatalism. Chance of injury, by far, was the strongest predictor, accounting for 14.0% of the variation.

TABLE 3. Descriptive Statistics.

Variables	X_1	X_2	X_3	X_4	X_5
Accident fatalism: X_1	-----	-0.35***	0.07	0.07	-0.08
Chance of injury: X_2	-----	-----	0.08	-0.02	0.22***
Accident Rate: X_3	-----	-----	-----	-0.01	0.03
Ability to get a better job: X_4	-----	-----	-----	-----	-0.36***
Desire to stay-leave: X_5	-----	-----	-----	-----	-----

* $p < .05$
** $p < .01$
*** $p < .001$

FIGURE 1. Hypothesized Prediction of Accident Fatalism.

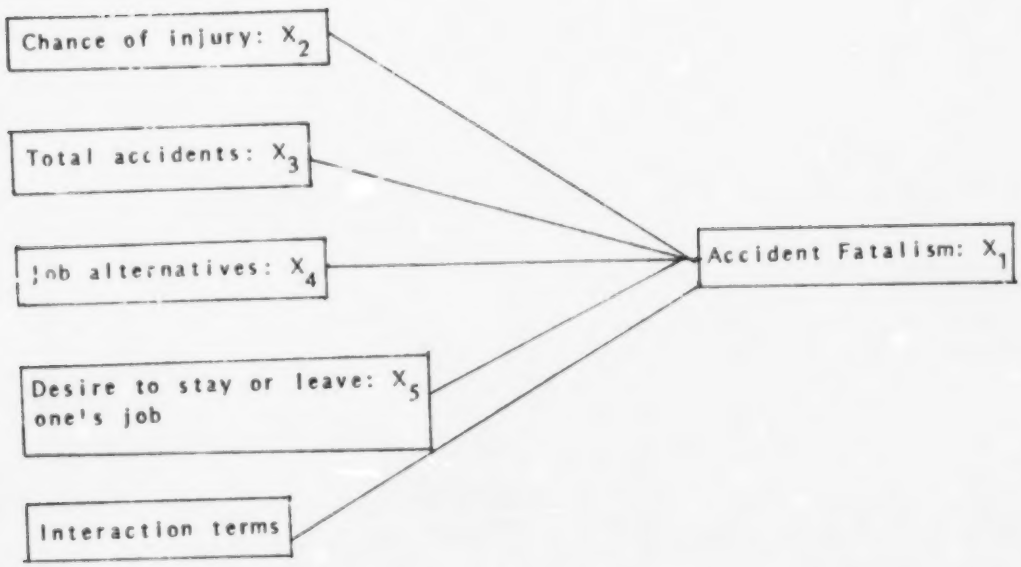

TABLE 4. Stepwise Multiple Regression Results.

Step	Predictors	Constant	Unstandardized Coefficient	Standard Error	Standardized Coefficient	T-score	Significance	R^2	Increase in R^2
1.	1. Chance of injury	1.87	-0.39	0.06	-0.37	6.22	***	0.14	0.14
2.	1. Chance of injury	1.94	-0.30	0.07	-0.28	4.17	***	0.16	0.02
	2. Chance of injury x accident rate		-1.58	0.61	-0.18	2.61	**		
3.	1. Chance of injury	2.01	-0.24	0.07	-0.23	3.26	**	0.18	0.02
	2. Chance of injury x accident rate		-5.62	1.76	-0.63	3.19	**		
	3. Chance of injury x accident rate x desire to stay-leave one's job		0.65	0.27	0.45	2.44	*		

Con't...

Table 4 ... Continued

Step	Predictors	Constant	Unstandardized Coefficient	Standard Error	Standardized Coefficient	T-score	Significance	R^2	Increase in R^2
4.	1. Chance of injury	1.96	-0.22	0.07	-0.21	2.93	**	0.19	0.01
	2. Chance of injury x accident rate		-7.11	1.89	-0.79	3.76	***		
	3. Chance of injury x accident rate x desire to stay-leave one's job		0.60	0.27	0.41	2.23	*		
	4. Chance of injury x accident rate x desire to stay-leave job x ability to get better job		0.15	0.07	0.23	2.05	*		

* $p < .05$
** $p < .01$
*** $p < .001$

The chance of injury X accident rate interaction, accounting for an additional 2.0% of the variation in fatalism, is presented in Table 5. The greatest level of fatalism is for respondents who have experienced a high rate of accidents during their life and who feel that their present job is dangerous. As hypothesized, the least fatalistic respondents have both low accident rates and feel their chance of being hurt on the job is remote. Chance of injury results in a significant difference in accident fatalism only for respondents who have a low accident rate. For respondents with a high accident rate, differential perceptions of the likelihood of personal injury on the job have no impact on fatalism.

Cell means for the interaction of accident rate X desire to leave or stay, X chance of injury are shown in Table 6. This interaction term also increased the amount of explained variation by 2.0%. A number of trends are evident. First, fatalism tends to be lowest for those cells where the respondent has a below average accident rate and where the risk of injury is also low. Whether one wishes to leave or stay with his employer has no effect. Second, fatalism is generally greatest when a respondent has experienced a large rate of accidents in the past and when they feel unsafe at their current job. Once again, a desire to remain with their current employer or change jobs is not a significant factor. The only unexpected finding is for respondents with high accident rates, wishing to change employers, but with a low perceived chance of injury. They have a significantly lower level of fatalism than respondents who are similar in all respects except for higher perceived chance of injury. We will see when we consider the four-way interaction term that this cell is strongly affected by the ability to get a better job.

The four-way interaction, explaining an additional 1.0%, provides additional support for our hypotheses. Accident fatalism tends to be high for

TABLE 5. Cell Means of Accident Fatalism for the Interaction of Chance of Injury x Accident Rate

Chance of Injury	Accident Rate is Low	Accident Rate is High
Injury is Remote	$\bar{X}$ = 1.89 s.d. = 1.66 N = 73	$\bar{X}$ = 3.19[a,b] s.d. = 2.56 N = 35
Injury is Likely	$\bar{X}$ = 2.60[b] s.d. = 1.76 N = 48	$\bar{X}$ = 3.88[a] s.d. = 2.19 N = 91

Cell means with the same superscript are not significantly different (two-tailed t-test) at the 0.05 level or better.

TABLE 6. Cell Means of Accident Fatalism for the Interaction of Chance of Injury x Desire to Leave or Stay with One's Employer x Accident Rate

Chance of Injury	Accident Rate is Low Desire to Leave or Stay with Employer		Accident Rate is High Desire to Leave or Stay with Employer	
	Leave	Stay	Leave	Stay
Injury is Remote	$\bar{X} = 1.83^{b}$ s.d. = 1.72 N = 23	$\bar{X} = 1.92^{b}$ s.d. = 1.64 N = 50	$\bar{X} = 2.40^{b,c,d}$ s.d. = 2.07 N = 10	$\bar{X} = 3.44^{a,d}$ s.d. = 2.66 N = 25
Injury is Likely	$\bar{X} = 2.87^{b,c,d}$ s.d. = 1.65 N = 24	$\bar{X} = 2.36^{b,d}$ s.d. = 1.91 N = 24	$\bar{X} = 4.04^{a}$ s.d. = 2.13 N = 50	$\bar{X} = 3.69^{a,c}$ s.d. = 2.23 N = 41

Cell means with the same superscript are not significantly different (two-tailed t-test) at the 0.05 level or better.

respondents with a high accident rate, high chance of injury, a desire to leave their present job, but little likelihood of getting a better one (X = 4.07). Generally, all respondents with high accident rates and a high perceived chance of injury tend to be fatalisttic. Desire to stay or leave one's job and perceived ability to get a better job are largely inconsequential for these respondents.

Fatalism, again, tends to be lowest for respondents who have inccurred relatively fewer job related accidents and who perceive a low risk of injury at work. Ability to get a better job and desire to stay or leave are also minor considerations for this group of respondents. Contrary to expectations, those respondents who were predicted to be the least fatalistic, i.e., those with many job alternatives but a desire to stay (X = 2.23), are significantly greater than respondents with fewer job prospects but wishing to leave.

An interesting picture is presented by respondents with high accident rates but a low risk of injury. In the previous interaction term, respondents wishing to leave their jobs showed low levels of accident fatalism. Incorporating the variable measuring ability to get a better job radically changes this. Respondents who wish to leave but believe they cannot find a better job show very high levels of fatalism (X = 5.50), whereas respondents wishing to leave but perceiving more opportunities to get a better job are significantly lower.

Additional analyses found that respondents with high accident rates, low chances of injury, and a desire to change jobs but lacking few job alternatives, were the least likely to feel they controlled their destinies. On questions asking, "There is little I can do to change many of the important things in my life," "There is really no way I can solve some of the problems I have," and, "I have little control over the things that happen to me," this subgroup scored the highest. When asked whether a year from now they would be with the same

TABLE 7. Cell means of Accident Fatalism for the Interaction of Chance of Injury x Ability to get a Better Job x Desire to Leave or Stay with One's Employer x Accident Rate

Chance of Injury	Ability to get a Better Job	Accident Rate is Low		Accident Rate is High	
		Desire to Leave or Stay with Employer		Desire to Leave or Stay with Employer	
		Leave	Stay	Leave	Stay
Injuries Remote	Low	$X=1.2^{c,e}$ s.d.=.45 N=5	$X=1.68^{c,d,e,f,i}$ s.d.=1.36 N=29	$X=5.5^{a}$ s.d.=.71 N=2	$X=3.5^{a,g,h}$ s.d.=2.90 N=14
	High	$X=2.0^{b,c,h,i}$ s.d.=1.91 N=18	$X=2.23^{b,f,h,i}$ s.d.=1.93 N=22	$X=1.63^{c,d,e,f,i}$ s.d.=1.41 N=8	$X=3.36^{g,h,i}$ s.d.=2.46 N=11
Injuries Likely	Low	$X=2.57^{b,e,g,h,i}$ s.d.=2.44 N=7	$X=3.02^{b,d,g,h,i}$ s.d.=2.38 N=13	$X=4.07^{a,g}$ s.d.=2.46 N=14	$X=3.61^{a,g}$ s.d.=2.23 N=23
	High	$X=3.00^{b,g,h}$ s.d.=1.28 N=17	$X=1.73^{c,e,f,i}$ s.d.=0.91 N=11	$X=4.03^{a,g}$ s.d.=2.02 N=36	$X=3.78^{a,g}$ s.d.=2.34 N=18

Cell means with the same superscript are not significantly different (two-tailed t-test) at the 0.05 level or better.

employer, this subgroup tended to believe they would stay at the same job while other respondents, desirous of changing, were more optimistic they would be working elsewhere.

If we compare low accident rate respondents who see themselves at risk with those respondents who also perceive a high risk of injury but having higher accident rates, we find that all subgroups are equally fatalistic but with one exception. Low accident rate respondents wishing to stay with their current employer but possessing the ability to get a better job if they chose to leave show significantly lower levels of fatalism ($X = 1.73$).

In summarizing this four-way interaction, the following can be said. Accident rate and chance of injury are the major determinants of accident fatalism. Respondents who are above the median in terms of previous accidents and who believe their work is hazardous and places them in jeopardy are the most fatalistic. Desire to stay or leave one's employer and ability to get a better job are not important factors; the combination of prior accident history and current risk of injury are of over-riding importance. At the other end of the spectrum, respondents with a lower than average rate of accidents and a low perceived chance of injury tend to show the lowest levels of fatalism. Once again, desire to stay or leave and ability to get a better job are less influential.

The effects of ability to get a better job and desire to stay or leave are most pronounced when either accident rate or chance of injury is low, but not both of them. They do not become salient factors, influencing accident fatalism, until one of the more dominant variables, i.e., accident rate or chance of injury, is weak. For example, fatalism is very high for high acccident rate-low chance of injury respondents who feel "trapped" in their jobs. These persons wish to change jobs but perceive few opportunities to do

so. Their high accident-low chance of injury counterparts who wish to leave and who feel they have many job alternatives are significantly less fatalistic; afterall, they are less "trapped".

Continuing this theme, we find for low accident rate-high chance of injury respondents that fatalism is lowest when respondents believe they can find another job but have no desire to leave. In essence, they can control their situation by going to another, better paying job. Presently, however, they choose to remain where they are because in terms of pay, opportunities for promotion, and so on, the present job suffices.

Table 8 shows a comparison between the levels of fatalism for different combinations of variables predicted at the beginning of this paper and the actual ranking of means for the conditions. A Spearman's rank-order correlation of 0.79 ($p < .01$) between the ranks suggests a relatively strong fit between the hypothesized rank ordering and the actual rankings.

TABLE 8. Expected and Observed Impact of Combinations of Predictors on Accident Fatalism.

Level of Fatalism		Previous Accidents	Risk of Injury	Job Alternatives	Desire to Change Jobs
(expected)	(observed)				
Lowest (1)	(6)	Low	Low	Many	No
(2)	(5)	Low	Low	Many	Yes
(3)	(3)	Low	Low	Few	No
(4)	(1)	Low	Low	Few	Yes
(5)	(4)	Low	High	Many	No
(6)	(8)	Low	High	Many	Yes
(7)	(9)	Low	High	Few	No
(8)	(7)	Low	High	Few	Yes
(9)	(10)	High	Low	Many	No
(10)	(2)	High	Low	Many	Yes
(11)	(11)	High	Low	Few	No
(12)	(16)	High	Low	Few	Yes
(13)	(13)	High	High	Many	No
(14)	(14)	High	High	Many	Yes
(15)	(12)	High	High	Few	No
Highest (16)	(15)	High	High	Few	Yes

DISCUSSION

This study examined one possible response to hazardous working conditions: fatalistic acceptance of the inevitability of personal injury accidents. It was hypothesized that fatalism would be influenced by a worker's perception of risk and the availability of avenues of escape from the threatening conditions. Two measures of personal risk were measured: (1) previous accident history and (2) current perceived risk of personal injury. "Escape" was described in terms of: (1) a respondent's perceived ability to find another, presumably, "safer" job and (2) his desire to stay with his current employer or to leave.

When respondents had a relatively extensive history of occupational accidents and also felt that their current occupation was highly dangerous, they tended to show high levels of accident fatalism, resigning themselves to the inevitability of personal injury accidents. This seems a reasonable conclusion for them to draw, given that they have been unsuccessful in the past in avoiding injury from accidents, and they continue to be in jeopardy. Conversely, fatalism tended to be lower when both the rate of past personal-injury accidents was low and the risk of current injury was slight. For these respondents, there was no need to be fatalistic about their plight since they had been accident-free in the past, and the present and future appeared to be equally safe.

The variables measuring ability to escape from a hazardous work environment had a lesser impact on fatalism when compared to accident history and present risk of injury. Respondents who were "trapped", i.e., they wanted to leave their current positions but found there was no place to go, had the highest levels of fatalism of all respondents who were at greatest risk; i.e., they had the worst accident histories and the highest perceived risk of injury at the present time. Equally as fatalistic, however, were "trapped" respondents who

perceived little chance for injury in their current positions but who, at the same time, had poor prior accident histories.

Those respondents who felt they were readily able to find another job if they had to, but were in no hurry to leave their present one, had the greatest freedom to escape from a hazardous environment. Indeed, these respjondents showed the lowest levels of fatalism, particularly when both accident history and current risk of injury were low. However, these respondents also showed low levels of fatalism when previous accident history was poor but there was little current risk of injury or when accident history was favourable but there was a considerable chance of injury at the present time. It is as if the opportunity to escape, though not yet exercised, reduced the psychological pressures to passively resign one's self to the unavoidability of accidents, as long as conditions were no totally unfavorable; i.e., as long as either prior accident history or current risk of injury was low. When both were unfavorable, however, opportunities for escape were inadequate to reduce the sense of fatalism. When both risk factors were absent, avenues of escape were not really required.

The practical implications of these findings should be apparent. Ideally, a safe working environment requires the participation of both workers and management. Management can assist by eliminating the most obvious hazards and minimizing the effects of others by providing safeguards, such as protective clothing, safe operating procedures in the use of equipment or the handling of dangerous substances. They also can enhance safety by calling attention to hazards through warning signs, safety lectures, and so on. The worker can also play an active role in protecting himself. He can remain vigilant in detecting hazards, monitor equipment for defects that might provide injurious to him and to others, and conscientiously follow safety directives. At the same time, there are numerous "negative" responses to hazards that can be taken. For

example, the worker may avoid doing dangerous tasks, choosing to leave them to others. He may be frequently absent from the job or quit altogether. Or, as in the case of the present research, he may adopt a fatalistic resignation to the situation. Additional research is required to investigate the relationship between negative responses to hazards, such as fatalism, and more positive ones, such as operating equipment properly and wearing protective clothing. Does the absence of positive alternataives, e.g., the unavailability of adequate protective clothing, tend to elicit fatalism? Does fatalism reduce a worker's motivation to protect himself, so that he no longer wears protective clothing or adhers to safer operating procedures even though they are available? Finally, will the causal and self-defeating attitudes about safety associated with accident fatalism become more of a factor in industries or economies that are plagued by chronic unemployment and scarcity of jobs?

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